

RECEIVED
CENTRAL FAX CENTER

OCT 11 2006

AMENDMENTS TO THE CLAIMS:

1. *(withdrawn)* A shaped charge for forming a perforation in a subterranean formation, comprising:
a charge case;
an explosive charge;
a liner for retaining the explosive charge within the case, the liner comprising:
a cap member forming a leading portion of a jet; and
an unconsolidated particulated filler material
forming a particulated portion of the jet.
2. *(withdrawn)* The shaped charge of claim 1 further comprising:
a first liner membrane;
a second liner membrane;
wherein the cap member is disposed upon the first liner membrane and the filler material is disposed between the first and second liner membranes.
3. *(withdrawn)* The shaped charge of claim 1 wherein the filler comprises powdered metal.
4. *(withdrawn)* The shaped charge of claim 1 wherein the filler material is a blend of coarse and fine particles.
5. *(withdrawn)* The shaped charge of claim 1 wherein the first and second liner membranes are comprised of plastic.

COR-1075-US (RFOA of 08.29.06)

-2-

RECEIVED
CENTRAL FAX CENTER

OCT 11 2006

6. (withdrawn) The shaped charge of claim 1 wherein the first and second liner membranes are comprised of polyester.
7. (withdrawn) The shaped charge of claim 1 wherein the first and second liner membranes are comprised of fiberglass.
8. (withdrawn) The shaped charge of claim 1 wherein the first and second liner membranes are comprised of glass.
9. (withdrawn) The shaped charge of claim 3 wherein particles of the powdered metal have a polymer coating.
10. (withdrawn) The shaped charge of claim 9 wherein the powdered metal comprises aluminum and the polymer comprises TEFLON®.
11. (withdrawn) The shaped charge of claim 10 wherein the aluminum is passivated by a polymer coating.
12. (withdrawn) The shaped charge of claim 1 wherein the filler material comprises hollow metal pellets.
13. (withdrawn) The shaped charge of claim 1 wherein the filler material comprises glass balloons.

COR-1075-US (RFOA of 08.29.06)

-3-

14. (*withdrawn*) The shaped charge of claim 1 wherein the filler material comprises nano particles of material from the group consisting essentially of aluminum, copper, tungsten, copper-coated tungsten, and TEFLON®-coated aluminum.
15. (*original*) The shaped charge of claim 1 wherein the first and second membranes are contiguously affixed to one another to completely enclose the filler material.
16. (*original*) The shaped charge of claim 1 wherein the filler material has a density that is below formation density.
17. (*original*) The shaped charge of claim 1 wherein the filler material has a density that is below 2.7 g/cc.
18. (*withdrawn*) The shaped charge of claim 3 wherein the powdered metal comprises tungsten.
19. (*withdrawn*) The shaped charge of claim 18 wherein the powdered tungsten is coated with copper.
20. (*previously amended*) A shaped charge for forming a perforation in a subterranean formation, comprising:
a charge case adapted to be positioned in a perforating gun;

an explosive charge formed at least partially of an explosive material;
a liner for retaining the explosive charge within the case, the liner upon detonation of the explosive charge forming a jet having a forward portion and a substantially particulated portion, the particulated portion having a lower density than the forward portion.

21. *(previously amended)* The shaped charge of claim 20 wherein the particulated portion is formed of a filler material having a density of less than 2.7 g/cc.
22. *(previously amended)* The shaped charge of claim 21 wherein the filler material is particulated.
23. *(previously amended)* The shaped charge of claim 21 wherein the filler material comprises powdered aluminum.
24. *(withdrawn)* The shaped charge of claim 23 wherein the filler material further comprises TEFLON®.
25. *(original)* The shaped charge of claim 20 wherein the liner has a shape from the group consisting essentially of conical, cylindrical, trumpet, tulip, ball, and hemispherical.
26. *(withdrawn)* A method of perforating a formation comprising:
generating a perforating jet having a metal precursor portion followed by a

substantially particulated portion;
penetrating a wellbore casing with said metal precursor portion;
kissing the formation with said precursor portion; and
penetrating said formation with said particulated jet to form a perforation.

27. (*withdrawn*) The method of claim 26 further comprising the step of initiating a secondary detonation reaction within the formation to open pores within the formation surrounding the perforation.
28. (*withdrawn*) The method of claim 27 wherein the step of initiating a secondary detonation reaction comprises heating air-filled pores in unconsolidated aluminum and rapidly oxidizing unconsolidated aluminum via proximity of fluorine atoms in a TEFLON® coating.
29. (*withdrawn*) The method of claim 26 wherein the secondary burning reaction further comprises oxidizing aluminum through a TEFLON® coating.
30. (*withdrawn*) The method of claim 26 further comprising the step of disposing unreacted polymer within the formation to reduce fluid viscosity.
31. (*withdrawn*) The method of claim 26 further comprising the step of disposing unreacted TEFLON® within the formation to reduce fluid viscosity.
32. (*cancelled*) An explosively formed penetrator comprising:

a charge case;

an explosive charge within said charge case;

a liner for retaining the explosive charge within the case, the liner comprising:

a substantially contiguous first liner membrane;

a substantially contiguous second liner membrane; and

a particulated filler material disposed between the first and second liner membranes, the filler material being substantially unconsolidated.

33. *(currently amended)* The shaped charge of claim 20 wherein the explosively formed penetrator further comprises a metal cap disposed upon the liner.

34. *(previously presented)* The shaped charge of claim 20 wherein the liner forming a precursor jet is conformal to the charge case.

35. *(new)* The shaped charge of claim 21 wherein the filler material has a density that approximates the density of an oil bearing formation.

36. *(currently amended)* The shaped charge of claim 20 wherein the forward portion of the jet is adapted to penetrate ~~penetrates~~ one of (i) a perforating gun scallop, (ii) a perforating gun cover, (iii) a wellbore casing, and (iv) cement sheath.

37. *(currently amended)* the shaped charge of claim 20 wherein the particulated portion of the jet is adapted to perforate ~~perforates~~ the subterranean formation.

38. *(currently amended)* the shaped charge of claim 20 wherein the particulated portion of the jet is adapted to increase a temperature and reduce increases in temperature and reduces interstitial fluid viscosity upon penetration into the subterranean formation.
39. *(new)* The shaped charge of claim 1 wherein the filler material has a density that approximates the density of an oil bearing formation.
40. *(new)* The shaped charge of claim 1 wherein the forward portion of the jet penetrates one of (i) a perforating gun scallop, (ii) a perforating gun cover, (iii) a wellbore casing, and (iv) cement sheath.
41. *(new)* the shaped charge of claim 1 wherein the particulated portion of the jet perforates the subterranean formation.
42. *(new)* the shaped charge of claim 1 wherein the particulated portion of the jet increases in temperature and reduces interstitial fluid viscosity upon penetration into the subterranean formation.